

PH <i>US</i> 020013WO	MAT. DOSSIER
--------------------------	-----------------

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
24 January 2002 (24.01.2002)

PCT

(10) International Publication Number
WO 02/07433 A1

- (51) International Patent Classification⁷: **H04N 5/445** (74) Agent: **GROENENDAAL, Antonius, W., M.**; Internationaal Octrooibureau B.V., Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (21) International Application Number: **PCT/EP01/07677**
- (22) International Filing Date: **4 July 2001 (04.07.2001)** (81) Designated States (*national*): **CN, JP, KR.**
- (25) Filing Language: **English** (84) Designated States (*regional*): **European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR).**
- (26) Publication Language: **English**
- (30) Priority Data:
09/615,866 **13 July 2000 (13.07.2000)** **US**
- (71) Applicant: **KONINKLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).**
- (72) Inventor: **SCHAFFER, James, D.; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).**
- Published:**
— *with international search report*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*



WO 02/07433 A1

(54) Title: **EPG DISPLAY OF RECOMMENDED SHOWS WITH PREVIOUSLY VIEWED SHOWS IDENTIFIED**

(57) Abstract: **An electronic program guide flags episodes already watched in addition to making recommendations as to shows to watch in the future.**

EPG display of recommended shows with previously viewed shows identified

I. BACKGROUND OF THE INVENTION

A. Field of the Invention

The invention relates to an Electronic Program Guide ("EPG") that also recommends programming to a user.

5

B. Related Art

EP 774866 shows an example of an EPG, in which a record is made of what programs have been viewed in order to help in making recommendations of similar programs with respect to future viewing.

10

II. SUMMARY OF THE INVENTION

It is an object of the invention to further improve upon electronic program guides.

This object is achieved by providing an indication that a piece of content has already been viewed. This indication is provided as an alert to the viewer, rather than as a tool in choosing future programs to recommend. Advantageously, an episode I.D. is used to assist in the flagging process.

15

Further objects and advantages will become apparent below.

20 III. BRIEF DESCRIPTION OF THE DRAWING

The invention will now be described by way of non-limiting example with reference to the following drawings.

Fig. 1 shows a system on which an EPG in accordance with the invention could operate.

25

Fig. 2 is a flowchart relating to update of a profile.

Fig. 3 is a flowchart relating to operation of a recommender.

IV. DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The term "program" as used herein may relate to a single contiguous group of content of any type such as video, audio, or multimedia content, no matter what the vehicle of communication or distribution, such as TV or internet. The term "program" as used herein would include an episode or part of an episode and is to be distinguished from a series of programs, such as "Star Trek" or "Seinfeld" or "The Late Movie". The term "show" will be used synonymously with "program" herein. Thus, the marking of a program as watched as used herein is not the same as recording the fact that a viewer likes some series in general. The marking of a program as watched will not apply to the whole series, only to a particular piece of content. The term "EPG" will refer to an electronic guide to any type of "program" as that term is used herein.

In general terms like "view" or "viewer" when used herein are intended to include the possibility that the user is reading, listening to, or otherwise experiencing content of a program, even if there is no viewable content.

Fig. 1 shows a system on which an EPG in accordance with the invention may operate. The system includes a display 101, a processor 102, a memory 103, a keyboard 104, a remote 105, and a network connection 106. The display may be any conventional display, such as a TV or computer monitor, and may be constructed from flat panel, CRT, or any other technology. The processor 102 may be disposed within a same housing as the display 101, or external, and may be a general purpose processor such as would be found in a PC, or any other processor. Optionally, the processor 102 may be coupled to the display 101 via a network connection. The processor 102 may cause the display 101 to exhibit a graphical user interface ("GUI") or any other type of interface. The memory 103 may be of any type, such as magnetic, electronic, or optical, and may be disposed within the same housing as the display 101 and/or the processor 102. Optionally, the memory may be coupled to the processor 102 via a network connection. There may be additional user input devices such as a mouse, joystick, or trackball. There may be additional user output devices, such as a printer 108 or loudspeaker 107, which may alternatively be connected via the display unit. Any of the connections shown may be wired or wireless. The user input devices, including 104 and 105 may alternatively be connected directly to the processor 102. The system of Fig. 1 may be a television set, with or without facilities for connection to the internet. The system of Fig. 1 may be a PC.

Fig. 2 shows a flowchart of a procedure for updating a user profile. This flowchart shows certain steps relevant to the invention. However, one of ordinary skill in the

art may devise many other steps involved in updating a profile, not relevant to the invention, which are not shown here for brevity. This history retains data about programs a user has watched. At 201, a show enters the view history. This could happen either because the viewer has browsed though the show, or because the viewer has watched the show, or
5 because the show has been recommended by the recommender, or because a user is entering data manually into the recommender. At 203, it is tested whether the show was actually viewed. This might involve applying some sort of threshold as to length of time the show was viewed -- if the recommender is monitoring the viewer's use automatically -- or inquiring of the user directly whether the user viewed the show. If the show was watched, an
10 episode ID and a date for that show will be stored in the user profile. Episode I.D.'s are readily available, for instance in the EPG data provided by Tribune Media Services. The user profile is distinct from the view history in that the history is raw data, while the profile will have undergone some processing. For instance, the profile may have cumulative data. At 204, features relating to the show are added to the profile with a positive indication. If the
15 show has not been viewed, features relating to the show will be added to the profile with a negative indication.

Building of a profile with features and negative and positive indications are shown in U.S. Patent Application Serial No. 09/498,271 filed 2/4/00 (US000018). However, the concept of marking a particular show as watched extends to other techniques of
20 maintenance of a program guide or program recommender.

Fig. 3 shows a flowchart relating to operation of a recommender. The recommender operates on all shows during a given period. At 301 it is tested whether any further shows need a recommendation. If so, at 302 a recommendation relating to that show is computed. At 303, it is tested whether the episode ID of this show matches any in the
25 profile. If so, the show is flagged as previously viewed at 304, then another show is retrieved for recommendation.

At 305, the show is added to the EPG. Typically the shows will be displayed in a grid or table like format with time of day along one axis and channel number along another axis, and each show will occupy a rectangle in the grid or table. Nevertheless, those
30 of ordinary skill in the art may devise any number of other ways of displaying the EPG. Recommendations relating to the show may be shown in color or numerical codes on a grid. The numerical codes may be in the form of percentages, with 100% being the highest possible recommendation. The indication of the fact that a show has been watched can also

be a color or numerical code. Alternatively, the recommendations might be presented as a list of shows in order of desirability, with flags next to shows that have already been viewed.

A show that has already been viewed might still be recommended if it fits well into the user's profile. Some users desire to experience the same content more than once, while other users do not. For instance, a show might be color coded as green, indicating a strong recommendation, with some shading bars or stippling overlaid to indicate that the show has already been watched. The term "color coding" as used herein shall include various types of shading, such as bars and stippling.

Alternatively, there may be an option to drop all shows that have already been viewed from the EPG output.

The recommendations may be presented on the display, printed out, broadcast on a loudspeaker, or communicated in any other suitable way.

From reading the present disclosure, other modifications will be apparent to persons skilled in the art. Such modifications may involve other features which are already known in the design, manufacture and use of EPG's and which may be used instead of or in addition to features already described herein. Although claims have been formulated in this application to particular combinations of features, it should be understood that the scope of the disclosure of the present application also includes any novel feature or novel combination of features disclosed herein either explicitly or implicitly or any generalization thereof, whether or not it mitigates any or all of the same technical problems as does the present invention. The applicants hereby give notice that new claims may be formulated to such features during the prosecution of the present application or any further application derived therefrom.

The word "comprising", "comprise", or "comprises" as used herein should not be viewed as excluding additional elements. The singular article "a" or "an" as used herein should not be viewed as excluding a plurality of elements.

CLAIMS:

1. Apparatus for providing an EPG, comprising
 - a processor (102) adapted to maintain a user profile, based on a user history, the user profile including at least one indication of a piece of content that has already been experienced by the user; and
 - 5 — a user communication device (101, 108, 107) adapted to provide the EPG to the user, including the at least one indication as an alert to the user.
2. The apparatus of claim 1, further comprising a recommender (302, 304) adapted to provide recommendations relating to programs, wherein a presentation of the
10 recommendations comprises a presentation of the at least one indication (304).
3. The apparatus of claim 2, wherein the at least one indication comprises omitting programs already viewed from the EPG.
- 15 4. The apparatus of claim 2, wherein the recommendations are provided through color coding.
5. The apparatus of claim 4, wherein the presentation of the at least one indication is in at least one color coding contrasting with the color coding relating to other
20 aspects of recommendations.
6. The apparatus of claim 2, wherein the presentation of the recommendations comprises communication of numerical codes to the user.
- 25 7. The apparatus of claim 1, wherein the processor is adapted to use an episode I.D. to distinguish programs that have already been viewed.
8. Method of providing an EPG, comprising executing the following operations in at least one data processing device (102):

- maintaining a user profile, based on a user history, the user profile including at least one indication of a piece of content that has already been experienced by the user; and
- communicating the EPG to the user, including the at least one indication as an alert to the user.

5

9. The method of claim 8, further comprising executing the following operation in the at least one data processing device: providing recommendations (302, 304) relating to programs, wherein a presentation of the recommendations comprises a presentation of the at least one indication (304).

10

10. The method of claim 9, wherein the at least one indication comprises omitting programs already viewed from the EPG.

15

11. The method of claim 9, wherein the recommendations are provided through color coding.

20

12. The method of claim 11, wherein the presentation of the at least one indication is in at least one color coding contrasting with the color coding relating to other aspects of recommendations.

25

13. The method of claim 11, wherein the presentation of the recommendations comprises communication of numerical codes to the user.

14. The method of claim 8, wherein the operations include using an episode I.D. to distinguish programs that have already been viewed.

30

15. A medium (103) comprising an embodiment of code for providing an EPG, the medium being readable by at least one data processing device (102) to cause the at least one data processing device (102) to perform the following operations:

- maintaining a user profile, based on a user history, the user profile including at least one indication of a piece of content that has already been experienced by the user; and
- communicating the EPG to the user, including the at least one indication as an alert to the user.

16. The medium of claim 15, further comprising code adapted to cause execution of the following operation in the at least one data processing device: providing recommendations (302) relating to programs, wherein a presentation of the recommendations comprises a presentation of the at least one indication (304).

5

17. The medium of claim 16, wherein the at least one indication comprises omitting programs already viewed from the EPG.

10

18. The medium of claim 16, wherein the recommendations are provided through color coding.

19. The medium of claim 18, wherein the presentation of the at least one indication is in at least one color coding contrasting with the color coding relating to other aspects of recommendations.

15

20. The medium of claim 19, wherein the presentation of the recommendations comprises communication of numerical codes to the user.

21. The medium of claim 15, wherein the operations include using an episode I.D. to distinguish programs that have already been viewed.

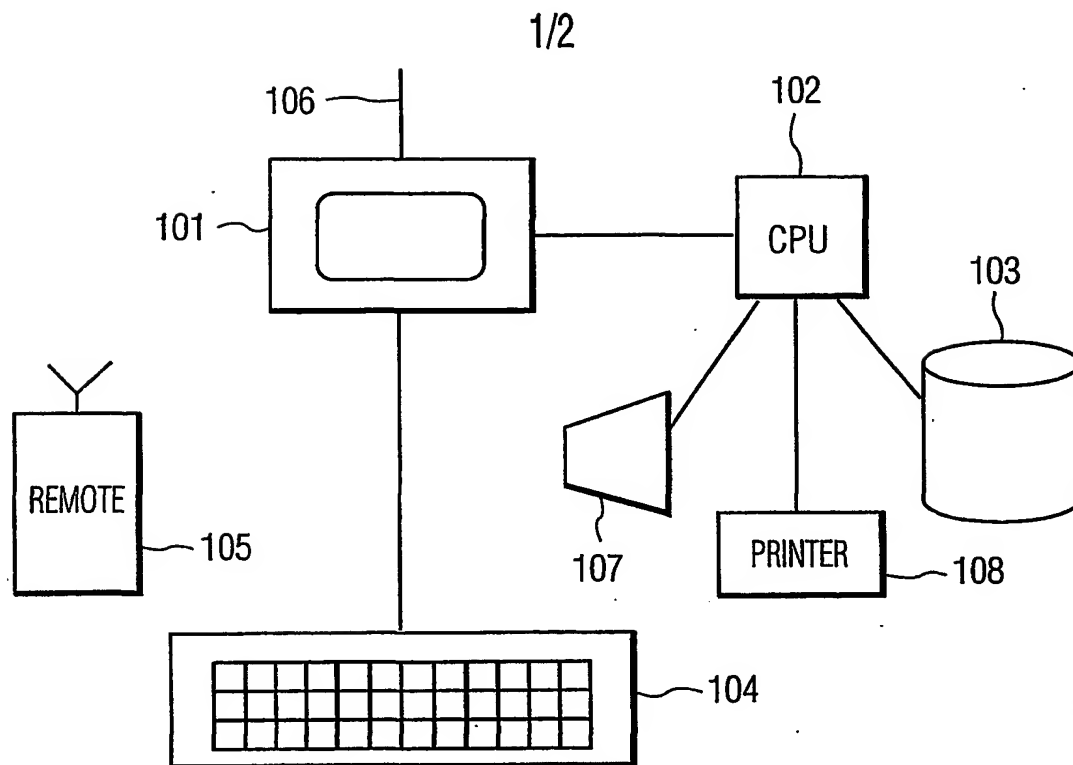


FIG. 1

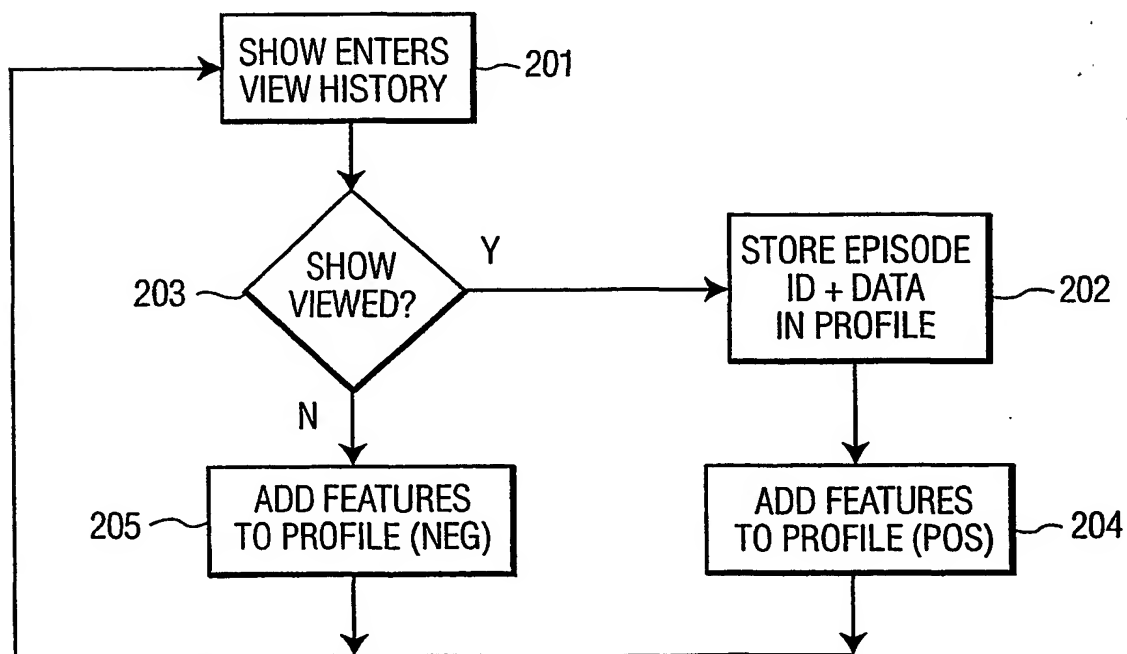


FIG. 2

2/2

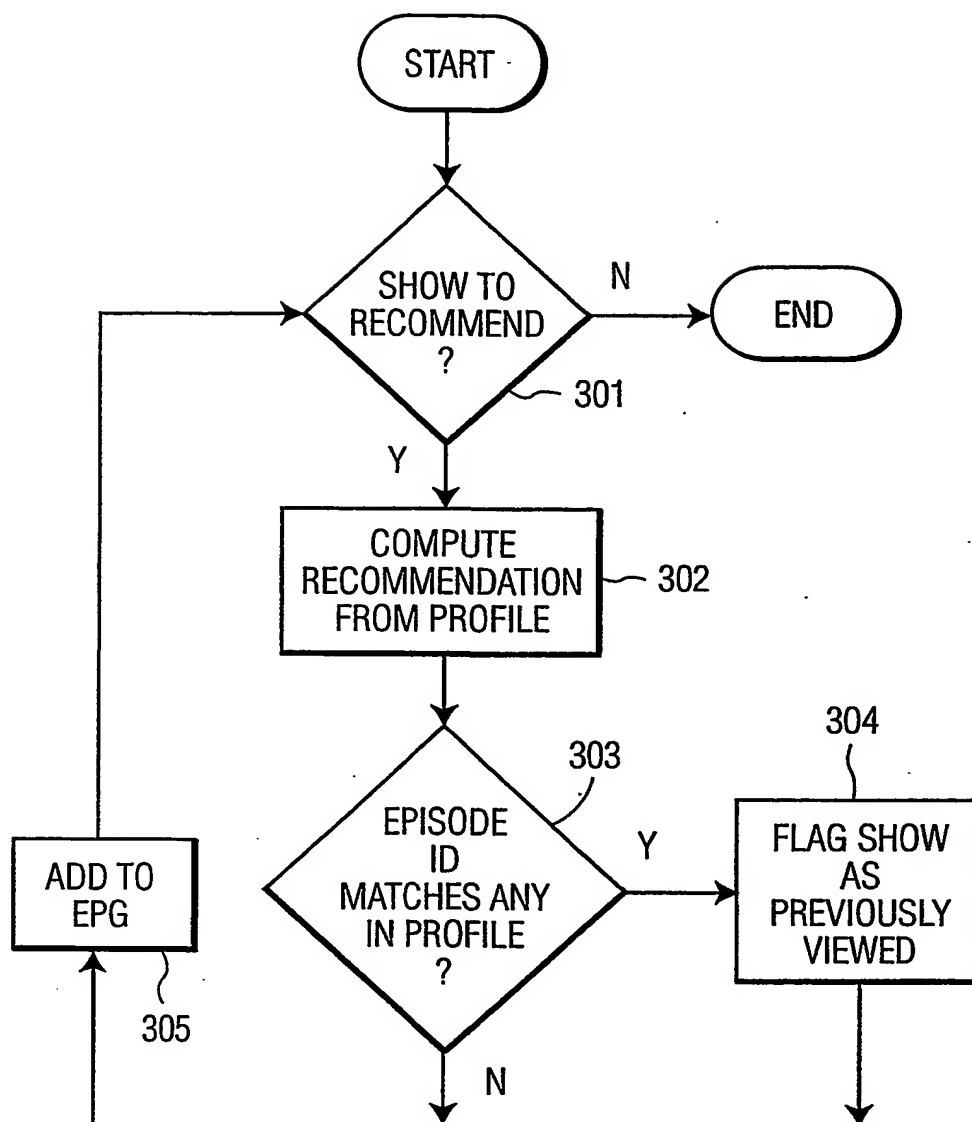


FIG. 3

INTERNATIONAL SEARCH REPORT

In national Application No
PCT/EP 01/07677

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04N5/445

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 00 27122 A (UNITED VIDEO PROPERTIES INC.) 11 May 2000 (2000-05-11)	1-3, 7-10, 14-17,21
Y	page 39, line 23 -page 47, line 18	4,5,11, 12,18,19
Y	WO 98 07277 A (STARSIGHT TELECAST INC.) 19 February 1998 (1998-02-19) page 5, line 6 - line 20	4,5,11, 12,18,19
X	WO 00 11869 A (UNITED VIDEO PROPERTIES INC.) 2 March 2000 (2000-03-02)	1,2,4, 7-9,11, 14-16, 19,21
	page 45, line 7 -page 46, line 20 page 43, line 31 -page 44, line 16 page 42, line 23 -page 43, line 7	

	-/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

& document member of the same patent family

Date of the actual completion of the international search

21 November 2001

Date of mailing of the international search report

23/11/2001

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Verschelden, J

INTERNATIONAL SEARCH REPORT

In Application No
PCT/EP 01/07677

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 289 782 A (STEVENS G.) 29 November 1995 (1995-11-29) page 2, line 3 -page 17, line 20 -----	1-3, 7-10, 14-17,21
Y	GB 2 343 051 A (SONY UNITED KINGDOM LIMITED) 26 April 2000 (2000-04-26) page 9, line 20 -page 11, line 7 -----	1-3,6, 8-10,13, 15-17,20
Y	EP 0 774 866 A (THOMSON ELECTRONICS INC.) 21 May 1997 (1997-05-21) cited in the application column 1, line 55 -column 6, line 9 -----	1-3,6, 8-10,13, 15-17,20
A	WO 00 38418 A (THOMSON CONSUMER ELECTRONICS) 29 June 2000 (2000-06-29) page 3, line 29 -page 4, line 10 page 5, line 1 -page 5, line 11 page 22, line 1 - line 4 -----	1,2,8,9, 15,16
A	WO 00 10327 A (DANMERE LIMITED) 24 February 2000 (2000-02-24) page 6, line 12 -page 7, line 16 page 40, line 11 - line 16 -----	1-3, 8-10, 15-17
A	US 5 675 390 A (SCHINDLER J. ET AL) 7 October 1997 (1997-10-07) column 4, line 1 - line 17 column 12, line 46 -column 13, line 27 -----	1,7,8, 14,16,21
A	US 5 410 344 A (GRAVES G. ET AL) 25 April 1995 (1995-04-25) column 7, line 5 -column 10, line 2 -----	1,7,8, 14,16,21
A	WO 97 48230 A (STARSIGHT TELECAST INC.) 18 December 1997 (1997-12-18) page 17, line 2 - line 38 -----	1,7,8, 14,16,21
P,X	EP 1 069 769 A (PACE MICRO TECH PLC) 17 January 2001 (2001-01-17) the whole document -----	1-3, 7-10, 14-17,21

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 01/07677

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0027122	A	11-05-2000	AU 1906700 A EP 1138156 A1 WO 0027122 A1	22-05-2000 04-10-2001 11-05-2000
WO 9807277	A	19-02-1998	US 6118492 A AU 3982797 A WO 9807277 A1	12-09-2000 06-03-1998 19-02-1998
WO 0011869	A	02-03-2000	AU 5682899 A BR 9913180 A CN 1319307 T EP 1099347 A1 WO 0011869 A1	14-03-2000 15-05-2001 24-10-2001 16-05-2001 02-03-2000
GB 2289782	A	29-11-1995	NONE	
GB 2343051	A	26-04-2000	NONE	
EP 0774866	A	21-05-1997	US 5867226 A BR 9605543 A EP 0774866 A2 JP 9200638 A SG 49982 A1	02-02-1999 11-08-1998 21-05-1997 31-07-1997 15-06-1998
WO 0038418	A	29-06-2000	AU 2054800 A EP 1145546 A1 WO 0038418 A1	12-07-2000 17-10-2001 29-06-2000
WO 0010327	A	24-02-2000	AU 9549298 A EP 1099338 A1 WO 0010327 A1	06-03-2000 16-05-2001 24-02-2000
US 5675390	A	07-10-1997	AT 184117 T CA 2226499 A1 DE 69604075 D1 DE 69604075 T2 EP 0839349 A1 HK 1010595 A1 JP 3026512 B2 JP 10511191 T WO 9704382 A1 US 5867223 A US 5838384 A	15-09-1999 06-02-1997 07-10-1999 05-01-2000 06-05-1998 20-04-2000 27-03-2000 27-10-1998 06-02-1997 02-02-1999 17-11-1998
US 5410344	A	25-04-1995	NONE	
WO 9748230	A	18-12-1997	AU 3294997 A WO 9748230 A1 US 6133909 A	07-01-1998 18-12-1997 17-10-2000
EP 1069769	A	17-01-2001	EP 1069769 A2	17-01-2001

